

REMARKS

Status of the claims:

With the above amendment, claim 1 has been amended. Claims 1-21 are pending and ready for further action on the merits. No new matter has been added by way of the above amendments. The amendment to claim 1 has support at page 94 in Table 1. Entry of the amendment and reconsideration is respectfully requested in light of the following remarks.

Rejections under 35 USC §103

Claims 1-18 and 21 have been rejected under 35 USC §103(a) as being unpatentable over Brust '019 (US Patent No. 6,100,019) in view of Nishikawa '977 (US Patent No. 6,077,977).

This rejection is traversed for the following reasons.

Present Invention

The present invention relates to a silver halide photographic emulsion comprising grains, wherein not less than 85% of the total projected area of the grains are occupied by tabular grains meeting the requirements (i) to (v) below:

(i) silver bromochloriodide grains having (111) faces as major surfaces,

(ii) hexagonal grains having a ratio of the length of an edge having the maximum length to the length of an edge having the minimum length of not more than 2,

(iii) perfect epitaxial grains having a total of six epitaxial junctions each existing only in each of six apex portions of the hexagonal grains,

(iv) the silver chloride content is 1 to 6 mol%, and

(v) the silver iodide content is 0.5 to 10 mol%.

#### Disclosure of Brust '019

Brust '019 discloses a process of conducting in a single reaction vessel selective site high chloride epitaxy deposition as a continuation of host high bromide {1111} tabular grain emulsion precipitation. Brust '019 further discloses that a host tabular grain emulsion is precipitated accounting for 0.05 to 1.5 moles of silver per liter of dispersing medium. Any iodide at the major faces of the tabular grains is uniformly distributed and any iodide in a surface region of the grains amounts to less than 7 mole, based on silver in the surface region. Until epitaxy is formed, the pH is held in the range of 3 to 8. Gelatino-peptizer in an amount of 1 to 40 grams per Ag mole is added to the emulsion. Chloride ions in the range of from 0.03 to 0.15 mole per liter is dispersed in the emulsion. pBr is held in the range of from 3.0 to 3.8 until epitaxy is

formed. Iodide ion in a concentration of from  $5 \times 10^{-6}$  to  $1 \times 10^{-4}$  mole per square meter of grain surface area is uniformly adsorbed to the major surfaces of the tabular grains.

**Disclosure of Nishikawa '977**

Nishikawa '977 discloses aryldialkylmethanes such as cumene that are converted to the corresponding hydroperoxides by reaction with oxygen in the presence of a promoter which may be an alkali metal borate such as borax, an alkali metal salt of a polymer such as an acrylic polymer, or an alkaline reagent in combination with a specific proportion of added water or water of hydration, also exemplified by borax.

**Removal of the Rejection over Brust '019 in view of Nishikawa '977**

Brust '019 indicates that the maximum ratio of silver halide grains in which epitaxies are formed at all of the six corners of each grain is 69% of all the grains. See column 14, TABLE 1, Example C in Brust '019.

Nishikawa '977 discloses tabular grains containing AgCl in the outermost layer, characterized by a limitation to the aspect ratio and to the structure of the grains. Nishikawa '977 further discloses having dislocation lines. However, Nishikawa '977 makes no mention of tabular grains having epitaxial

junctions, one of the features to which the present invention is directed.

The present invention discloses a silver halide photographic emulsion comprising grains, wherein not less than 85% of the total projected area of the grains are occupied by tabular grains meeting the five requirements as claimed in claim 1. These grains cannot be obtained by the techniques disclosed in the prior art or by Brust '019 and Nishikawa '977. See the present written description, page 94, TABLE 1, and the detailed description on page 95.

Moreover, the present invention exhibits superior effects in terms of both fresh photographic performance and photographic performance after the lapse of time as compared to the effects achieved by the prior art techniques. The emulsions in which the perfect epitaxial grains are 85% or more (i.e., Samples 6 to 9) are superior in fresh photographic performance and photographic performance after the lapse of time than when the emulsions have a ratio of perfect epitaxial grains that are 70% or 75% (i.e., Samples 4 and 5). In particular, the performance of those emulsions with perfect epitaxial grains of 85% or more are superior in both fresh sensitivity and sensitivity after storage. One of ordinary skill in the art would readily understand further advantages of emulsions with perfect epitaxial grains of 85% when read in light of the instant

written description from TABLE 4 on page 103 to Table 6 on page 157.

Brust '019 does not disclose one of the structural elements of the present claimed invention, that is, grains in which 85% or more of the total projected area of the grains has 6 epitaxial junctions in each of six apex portions of the hexagonal grains. Brust '019 discloses a maximum ratio of silver halide grains in which epitaxies are formed at all of the six corners of each grain is 69% of all the grains. See column 14, TABLE 1, Example C in Brust '019. At column 14, lines 20-25, Brust '019 describes "about 70% of the total grain population exhibited 6 epitaxial depositions per grain". Nishikawa '977 fails to make up this deficiency. Thus, even if Brust '019 and Nishikawa '977 are combined together, the present invention cannot be achieved. Consequently, Applicants assert that the present invention cannot be rendered *prima facie* obvious from the combination of Brust '019 and Nishikawa '977. The rejection is inapposite. Withdrawal of the rejection is warranted and respectfully requested.

With the above remarks and amendments, it is believed that the claims, as they now stand, define patentable subject matter such that a passage of the instant invention to allowance is warranted. A Notice to that effect is earnestly solicited.


Pursuant to 37 C.F.R. §§ 1.17 and 1.136(a), Applicant(s) respectfully petition(s) for a three (3) month extension of time for filing a reply in connection with the present application. The required fee of \$930.00 is attached to the Notice of Appeal filed concurrently herewith.

If any questions remain regarding the above matters, please contact Applicant's representative, T. Benjamin Schroeder (Reg. No. 50,990), in the Washington metropolitan area at the phone number listed below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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By 

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

The claims have been amended as follows:

1. A silver halide photographic emulsion comprising grains, wherein not less than [70%] 85% of the total projected area of the grains are occupied by tabular grains meeting requirements (i) to (v) below:

(i) silver bromochloroiodide grains having (111) faces as major surfaces,

(ii) hexagonal grains having a ratio of the length of an edge having the maximum length to the length of an edge having the minimum length of not more than 2,

(iii) perfect epitaxial grains having a total of six epitaxial junctions each existing only in each of six apex portions of the hexagonal grains,

(iv) the silver chloride content is 1 to 6 mol%, and

(v) the silver iodide content is 0.5 to 10 mol%.